UECM1404 Theory of Interest Test 2 Practice

TEST 2 PRACTICE

UNIVERSITI TUNKU ABDUL RAHMAN

Q1. Two annuities have equal present values. The first is an annuity-immediate with quarterly payments of X for 14 years. The second is an increasing-annuity with 14 annual payments. The first payment is 300 and subsequent payments increase by 30.0 per year. You may assume an annual effective interest rate of 5%. Determine X. 115.7

Q2. Bob purchases an increasing perpetuity with payments occuring at the end of every 6 years. The first payment is 1, the second one is 2, the third one is 3, etc. The price of the perpetuity is 200. Calculate the annual effective interest rate. 0.0119

Q3. A loan is to be repaid by annual installments of X at the end of each year for 10 years. You are given:

- the total principal repaid in the first 3 years is 227.97; and
- the total principal repaid in the last 3 years is 485.36.

Calculate then total amount of interest paid during the life of the loan. 841.65

Q4. A loan of 82,000 is being repaid by a 40-year increasing annuity-immediate. The initial payment is

K, and each subsequent payment is K larger than the preceding payment. Determine the principal outstanding immediately after the 8th payment, using an annual effective interest rate of 8%. 125,866

Q5. A 10-year loan of 17,000 is to be repaid with payments to the lender of 1,700 at the end each year and deposits of X at the end of each year into a sinking fund. Interest on the loan is charged at and 8% annual effective rate. The sinking fund annual effective interest rate is 6%. Calculate X. 916.07

Q6. John borrows 19,000 for 10 years and uses a sinking fund to repay the principal. The sinking fund deposits earn an annual effective interest rate of 4%. The total required payment for both the interest and sinking fund deposit at the end of each year is 6921.75. Calculate the annual effective interest rate(in %) charged on the loan. 28.10